

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
ETHIOPIAN METEOROLOGICAL INSTITUTE
 METEOROLOGICAL DATA AND CLIMATOLOGY LEAD EXECUTIVE
REMOTE SENSING AND CLIMATOLOGICAL DESK
MONTHLY CLIMATE BULLETIN

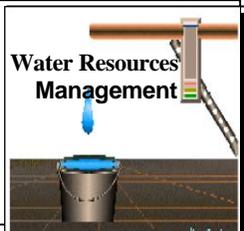
July 2023

Some Applications of Climate Information

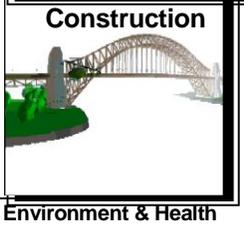
Disaster Management



Water Resources Management



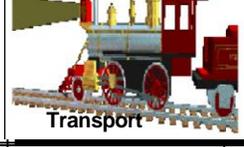
Construction



Environment & Health



Transport



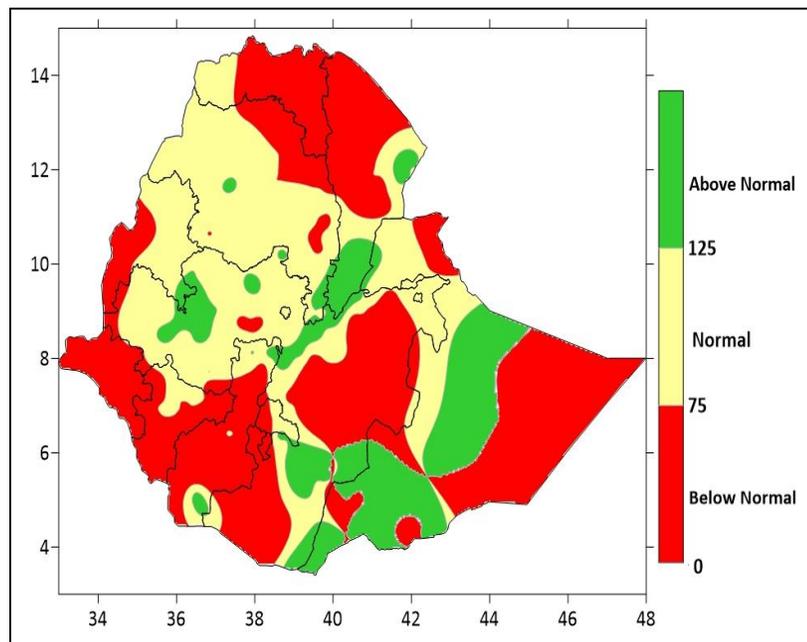
Recreation & Tourism



HIGHLIGHTS

During July 2023, days were remained warm over several portions of lowlands of Ethiopia, in particularly over most part of Afar, Somalia, Gambela and some part of Amhara regions (Fig. 3.1.2). Specifically, the extreme maximum temperature values were as high as 45.5, 45.5, 45, 44.8, 44.0 and 42.2°C over Dubti, Aysha, Semera, Elidar, Mille and Gewane respectively.

During July 2023, the monthly rainfall amount exceeded 400 mm or heavier rainfall was occurring over some parts of western Oromia and Gambella areas. In particular, the monthly total rainfall values of July 2023 were as high as 583.3, 495.3, 476.0, 472.0, 469.4, 432.3, 412.8, and 412.2 mm over Bahirdar, Nekemte, Dangila, Debreabor, Kachise, Alge, Arejo, Shambu and Gudemskel. The daily rainfall values over Jima, Bahirdar, Sherkole, Gimbi, Nekemte, Amdework and Dangila stations was 82.4, 78.2, 72.5, 70.3, 65.8, 65.5 and 60.5 mm respectively. In general, the monthly total rainfall amount of July 2023 was below normal over part of Somali, Afar, South and Eastern Oromia, Gambela, SNNPR and Northern Amhara regions. On the other hand, it was above normal over Northern Somali and some Central parts of the country. Some Southern, Central and Western part of the Country, and Somali region were wetter than last year. On the other hand, the rest of the country July 2023 was dryer than July 2022



Percent of normal rainfall of June 2023

Foreword

This climate bulletin is prepared and disseminated by the Ethiopia Meteorological Institute (EMI). It is aimed at providing climatological information to different services of the community involved in various socio-economic activities.

The information contained in this bulletin is believed to assist planners, decision-makers and the community at large by providing details of the climatic conditions of the nation in a given period.

This bulletin differs from the other real time and near real time bulletins issued by the Agency, which for their input depend only on meteorological stations equipped with single side band radio for data transmission. Though this bulletin is not real time, published with a delay of at least two months, the information contained in this bulletin is based on data coming from a much larger number of meteorological stations. Moreover, the information contained in this bulletin is not sector-specific and a wide range of users can benefit from it. The Agency disseminates monthly, seasonal and annual climatological bulletins in which all-necessary climatological information and significant climatic anomalies are highlighted.

We have a strong belief that various socio-economic activities related to planning disaster mitigation, water resources management, construction, environmental protection, transportation, recreation, tourism and others will be benefited most by the careful and continuous use of this bulletin. Meanwhile, your comments and constructive suggestions are highly appreciated to make the objectives of this bulletin success.

Director General

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1. Synoptic Situation

1.1 Surface

The Mascarene high with a mean central pressure value of above 1020hPa was centered at about 31°S, 92°E.

The St. Helena high with a mean central pressure value of above 1020hPa was centered at about 28°S, 0°E.

The Azores high with a mean central pressure value of 1018hPa was centered at about 29°N, 45°W.

1.2 Lower Troposphere (850 hPa vector wind)

Strong cross-equatorial and northeasterly flow of below 4m/s was observed over northern and western Indian Ocean and southwesterly flow was dominant over the Arabian Peninsula

1.3 Middle Troposphere (500-hPa Geopotential height)

The 500-hPa circulation during July featured a strong ridge over much of Canada and Scandinavia and moderate troughing over both U.S. coasts, western Alaska, and Siberia. The main land-surface temperature signals during July were above-average temperatures across much of North America, Europe, Russia, and parts of Asia.

1.4 Upper Troposphere (200 hPa vector wind)

Equatorial stronger easterly wind 15-30 m/s were dominate in most part of the horn of Africa. The subtropical easterly jet had strengthened further, while the upper-level westerly flow, associated with the tropical westerly jet weakened further.

2. Tropical Oceanic and Atmospheric Highlights

During July 2023, sea surface temperatures (SSTs) were above-average in much of the equatorial Pacific. The latest monthly Niño indices were +2.6°C for the Niño 1+2 region, +0.9°C for the Niño 3.4 region and +1.2°C for the Niño 3 region. The depth of the oceanic thermocline (measured by the depth of the 20°C isotherm) was above-average across the equatorial Pacific. The corresponding subsurface temperatures were 1-6°C above-average in the far eastern equatorial Pacific.

Reference: NOAA, climate diagnostic bulletin of July 2023

3. Weather

3.1 Temperature

During July 2023, days were remained warm over several portions of lowlands of Ethiopia, in particularly over most part of Afar, Somalia, Gambela and some part of Amhara regions (Fig. 3.1.2). Specifically, the extreme maximum temperature values were as high as 45.5, 45.5, 45, 44.8, 44.0 and 42.2°C over Dubti, Aysha, Semera, Elidar, Mille and Gewane respectively (Table 3.1.1).

On the other hand, the extreme minimum temperature values were below 5°C over some highland parts of Amhara, some part of Oromia and central Ethiopia.

In particular, Debrezeit, Ayekel, Ambamariam, and Hageremariam had extreme minimum temperature values of below 5°C during the month of July 2023 (Table 3.1.2).

In General, the monthly average temperature values were partially below normal and partially above normal over most parts of the country (Fig. 3.1.3).

Table 3.1.1 Stations with extreme maximum temperature values of greater than or equal to 40°C during July 2023

Stations	Extreme maximum temperature (°c)	Date
Gode	40	11
AWASH ARBA	41	30
AYSHA	45.5	2
CHIFRA	41	2
DUBTI	45.5	6
ELIDAR	44.8	31
Gewane	42.2	1
MILLE	44	30
Semera	45	7

Table 3.1.2 Stations with extreme minimum temperature values of below or equal to 5°C during July 2023

Stations	Extreme minimum temperature (°c)	Date
DEBREZEIT(AF)	4.2	28
AMBAMARIAM	4.2	9
AYKEL	2.5	7
CHIFRA	0.5	28
HAGEREMARIAM	2	11

3.2 Rainfall

Normally, July is one of the months of the rainy season of Kiremt (JJAS) rain-benefiting areas of the country. The mean monthly rainfall amount exceeds 340 mm over much areas of North and northeast part of the country.

During July 2023, the monthly rainfall amount exceeded 400 mm or heavier rainfall was occurring over some parts of western Oromia and Gambella areas.

In particular, the monthly total rainfall values of July 2023 were as high as 583.3, 495.3, 476.0, 472.0, 469.4, 432.3, 412.8, and 412.2 mm over Bahirdar, Nekemte, Dangila, Debretabor, Kachise, Alge, Arejo, Shambu and Gundemeskel. The daily rainfall values over Jima, Bahirdar, Sherkole, Gimbi, Nekemte, Amdework and Dangila stations was 82.4, 78.2, 72.5, 70.3, 65.8, 65.5 and 60.5 mm respectively (Tables 3.2.1).

In general, the monthly total rainfall amount of July 2023 was below normal over part of Somali, Afar, South and Eastern Oromia, Gambela, SNNPR and Northern Amhara regions. On the other hand, it was above normal over Northern Somali and some Central parts of the country (Fig. 3.2.2).

Some Southern, Central and Western part of the Country, and Somali region were wetter than last year. On the other hand the rest of the country July 2023 was dryer than July 2022 (Fig. 3.2.2).

Table 3.2.1. Stations with more than 60mm of rainfall in 24 hours during July 2023

Stations	Amount (mm)	Date
Bahir Dar Met	78.2	5
JIMMA	82.4	30
Nekemte	65.8	19
AMDEWORK	65.5	2
DANGLA	60.5	21
Gimbi	70.3	26
SHERKOLE	72.5	30

Table 3.2.2. Stations with more than 400mm of monthly total rainfall during July 2023

Station	Amount
Bahir Dar Met	583.3
Nekemte	495.3
ALGIE	432.3
AREJO	424.8
D/TABOR	472
DANGLA	476
Gimbi	411.6
GUNDOMESKEL	412.2
KACHISE	469.4
SHAMBU	412.8

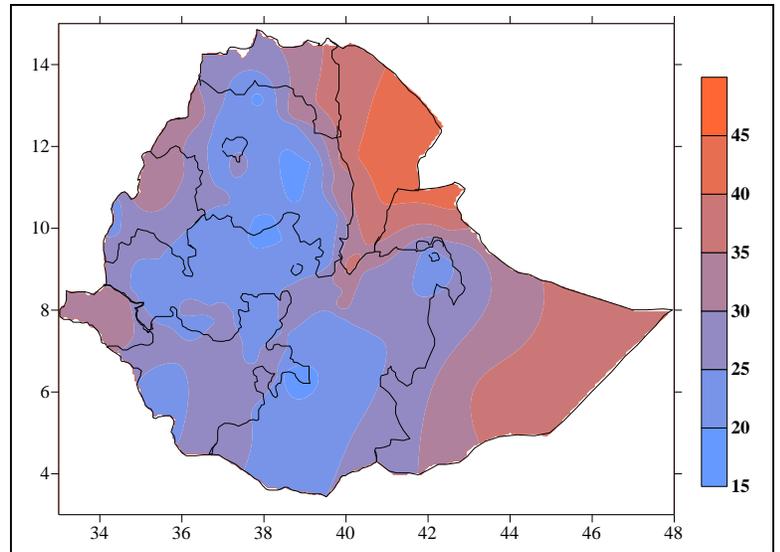


Fig. 3.1.2. Mean maximum temperature in °c during July 2023

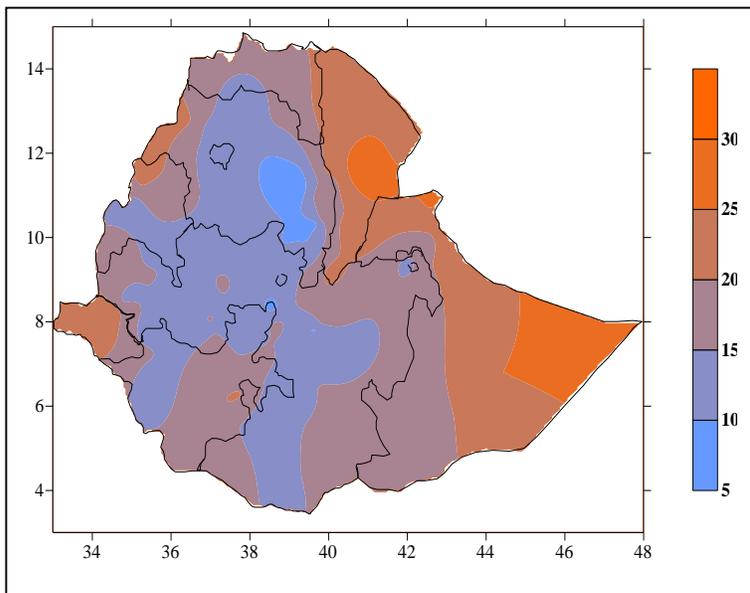


Fig. 3.1.1. Mean minimum temperature in °c during July 2023

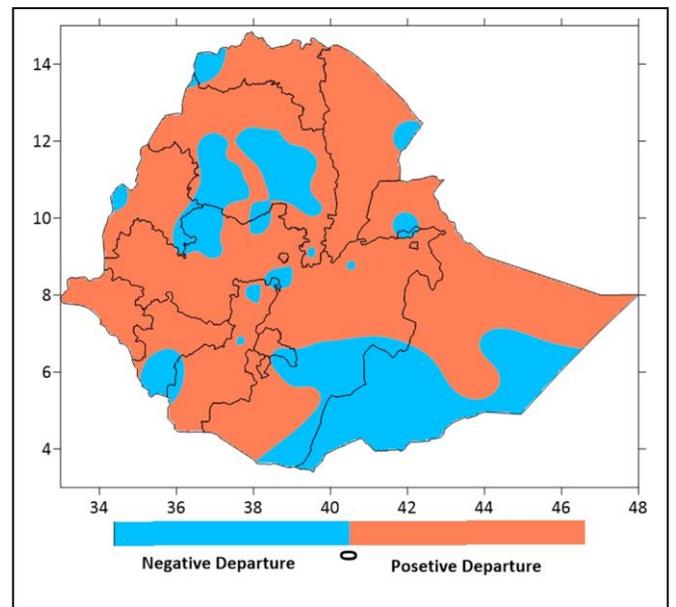


Fig.3.1.3. Departure of monthly average temperature from normal during July 2023

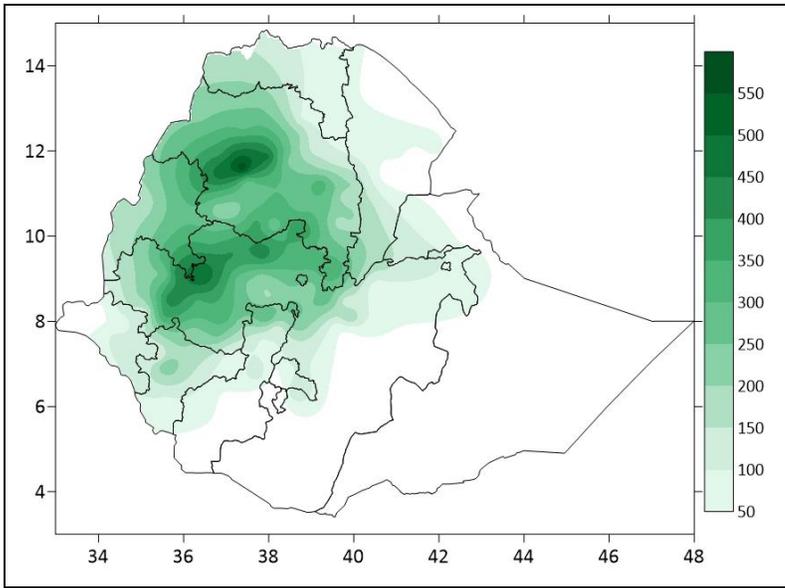


Fig.3.2.1. Monthly total rainfall in mm during July 2023

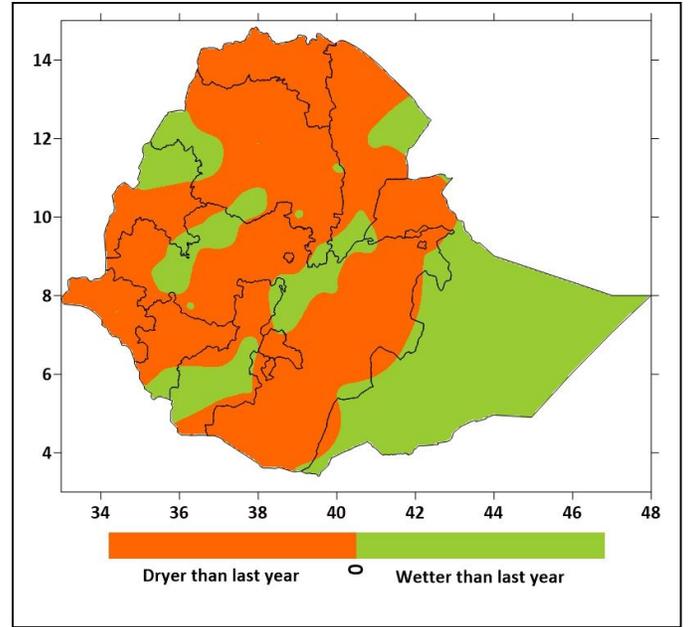


Fig. 3.2.3. Monthly total rainfall of July 2023 minus monthly total rainfall of July 2022

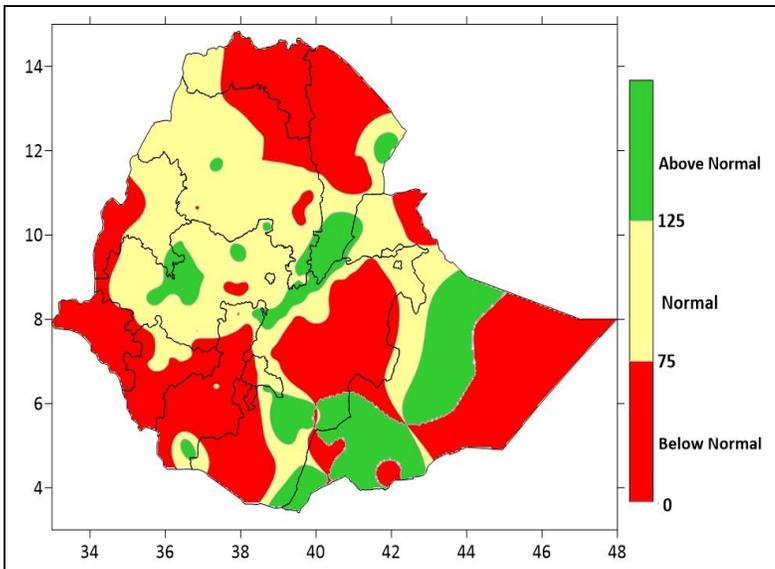


Fig. 3.2.2. Percent of normal rainfall during July 2023